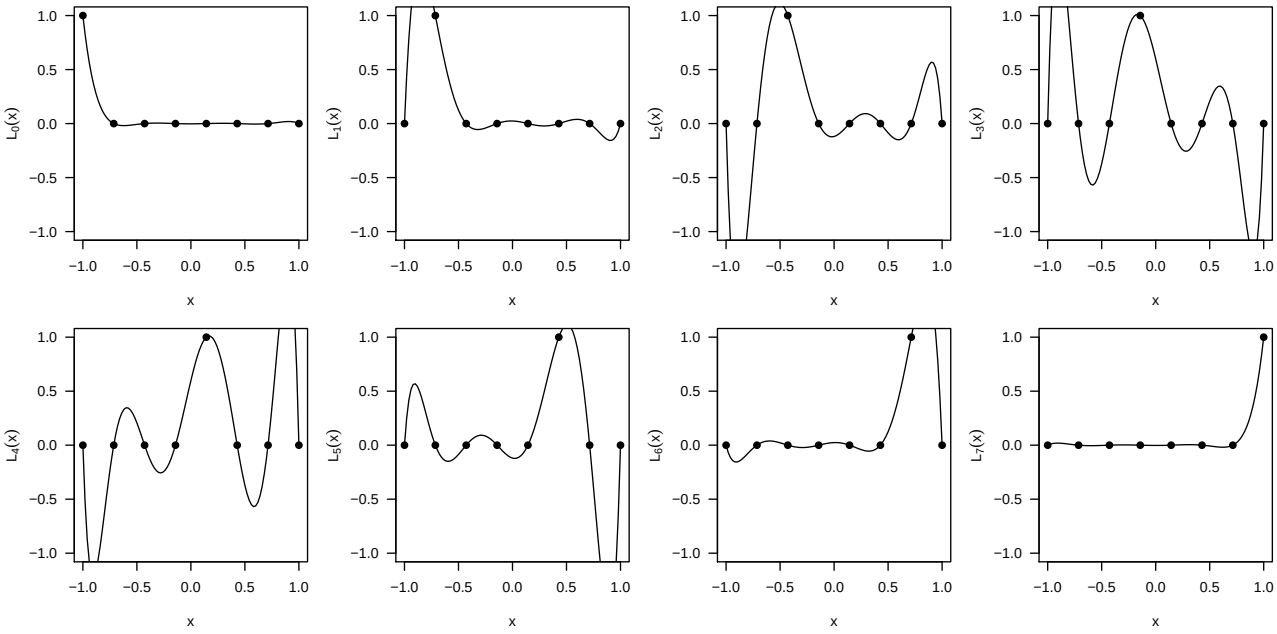
Below are $L_k(x) = L_{7,k}(x)$ for 8 equally spaced points $x_0 = -1, \ldots, x_7 = 1$ on $[-1, 1]$.



Considering the function

$$f(x) = x^3 e^{-1.1x} \sin(x)$$

we show the approximation

$$P(x) = P_7(x) = \sum_{k=0}^{7} f(x_k) L_k(x)$$

(along with the function) on the left and the error on the right.